Authors

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Dr. Ames is the manager of a thin film group at the Thomas J. Watson Research Center in Yorktown Heights. He has been with IBM since 1955. He obtained an A.B. from Syracuse University in 1951 and a Ph.D. in Physics from Cornell University in 1955. For the past several years, he has worked on phenomena related to the use of thin films for semiconductor integrated circuits. He is a member of the American Physical Society, the American Vacuum Society, and the IEEE.

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Dr. Bossen has been working in the Advanced Reliability, Availability and Serviceability Technology Department at Poughkeepsie since 1968 doing advanced theoretical studies in error correcting codes and their application to computing systems. He received his B.S. in 1964, M.S. in 1966, Ph.D. in 1968, all in Electrical Engineering from Northwestern University. He is a member of Sigma Xi, Tau Beta Pi, Eta Kappa Nu, ACM and IEEE.

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Mr. Brown joined IBM at Poughkeepsie in 1959. His main work has been on the enhancement of computer systems reliability through the use of error correcting codes and other redundancy techniques. He is currently in a systems evaluation group, using queueing theory and simulation to evaluate new computing systems concepts. He holds B.S. and M.S. degrees in Electrical Engineering, 1959, from the Massachusetts Institute of Technology. He is a member of Eta Kappa Nu, Sigma Xi and IEEE.

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Mr. Croisier was graduated from the Ecole Polytechnique de l'Universite de Lausanne, Switzerland, in 1956. He has worked in the IBM Research Laboratory at Zürich, Switzerland, and in the Industrial Physics Department of the Federal Institute of Technology also in Zürich. In 1961, he joined IBM France, but was assigned to IBM Components Division in Poughkeepsie where he spent two years on semiconductor engineering. Since 1964 he has worked in the development laboratory of IBM France at La Gaude.

Somanath Dash

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Dr. Dash is a member of the technical staff at the Fairchild Semiconductor Research and Development Laboratory, where he is currently engaged in research on the effects of various defects on semiconductor device performance. His academic background includes the degrees B. Tech. (with honors) in Metallurgical Engineering, 1959, from the Indian Institute of Technology; M.S., 1962, and Ph.D., 1964, both in Metallurgical Engineering from the University of Pennsylvania. He was employed by IBM from 1965 to 1969, first, at the laboratories in Poughkeepsie, and later, at East Fishkill. While at IBM he conducted research on diffusionless solid-state phase transformations and annealing twins in metals, on diffusion induced defects in semiconductors, and on the structure of thin films. Dr. Dash is a member of the American Institute of Metallurgical Engineers and the Research Society of America (RESA).

François M. d'Heurle

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Dr. d'Heurle is the manager of a film materials group in the Applied Research Department at the Research Center, where he has been employed since 1966. His area of concentration is the study of thin-film insulators and conductors for microcircuit use. He holds the degrees, B.S. in Mechanical Engineering, Arts at Metiers, Paris, 1946; M.S. in Metallurgical Engineering, Michigan Technical University, 1948; and Ph.D. in Metallurgical Engineering, Illinois Institute of Technology, 1958. He is a member of the IEEE, the American Crystallographic Society, the American Institute of Mining and Metallurgical Engineers, the American Vacuum Society, the Society for Social Responsibility in Science and Computer Scientists for Peace.

Peter A. Franaszek

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Dr. Franaszek joined the signal and image processing group at the Research Center in 1968 where he has been concerned with problems with signal processing, coding and digital communication. He received his Sc.B. in Engineering in 1962 from Brown University and his M.A. in 1964 and Ph.D. in 1965 both in Electrical Engineering from Princeton University. From 1965 to 1968 he was with the Bell Telephone Laboratories. He is a member of Sigma Xi, Tau Beta Pi, IEEE and AAAS.

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Mu-Yue Hsiao

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Dr. Hsiao is manager of the Advanced Reliability, Availability and Serviceability Technology Department at Poughkeepsie where he has been located since 1967. He is engaged in developing error correcting codes, logical checking techniques and test pattern generation for computer systems. He received his B.S. in Electrical Engineering from Taiwan University in 1956; his M.S. in Mathematics from the University of Illinois in 1960 and his Ph.D. in Electrical Engineering from the University of Florida in 1967. He is a member of Sigma Xi, Phi Kappa Phi, Eta Kappa Nu, IEEE and AAAS.

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Dr. Jona is a faculty member in the Materials Science Department of the State University of New York at Stony Brook. His current interest is in surface studies by means of low energy electron diffractions. Before coming to Stony Brook he was a staff member at the IBM Thomas J. Watson Research Center where he worked in the field of vapor-solvent growth of semiconductors. He received his Dipl. in Physics in 1945 and his Ph.D. in Physics in 1949, both at the Eidgenossische Technische Hochscule (E.T.H.), Zürich. He was an Instructor and Lecturing Assistant in the Department of Physics at the University of Berne during the academic year 1945–1946. He was an Instructor and Research Associate in the Physics Department of the E.T.H. from 1946 to 1952. From 1952 to 1957 he held the positions of Research Associate and Assistant Professor in the Physics Department of the Pennsylvania State University. He was a Research Physicist at the Westinghouse Research Laboratory in Pittsburgh from 1957 to 1959, when he joined IBM research. He is a member of the American Physical Society, the Swiss Physical Society, the Italian Physical Society, the Physical Society of Japan and RESA.

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Dr. Joshi is the manager of two groups at the Components Division Laboratory in Burlington, Vermont. One of the groups is concerned with electro-optics and metallurgy, and the other with materials chemistry and process analysis. He received the B.E. in Metallurgical Engineering in 1952 from Poona University, India; the B.E. in Electrical Engineering in 1955 from Gujarath University, India; and the D.Eng. in Metallurgy in 1964 from the Yale University. He has worked as a junior research officer at the Atomic Energy Establishment in Bombay, and he joined IBM at the Poughkeepsie Laboratory in 1963. Dr. Joshi's work, both in Poughkeepsie and, later, in the East Fishkill Laboratory was mainly in the area of diffusion-induced defect structure in silicon. He transferred to his present location in 1968. He is a member of the American Institute of Metallurgical Engineers and Sigma Xi.

H. Kobayashi

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Since 1967 Dr. Kobayashi has been a Research Staff member in the communication sciences group at the Thomas J. Watson Research Center. His major field of specialization is communication and signal processing systems and his interests encompass related areas of system theory. During the period of September 1969 through March 1970 he visited the Department of System Science at the University of California at Los Angeles. As an Acting Assistant Professor, he taught courses in probability theory, information theory and signal detection theory. He holds the B.S. and M.S. Degrees in Electrical Engineering, obtained in 1961 and 1963, respectively, from the University of Tokyo and the M.A. and Ph.D. Degrees in Electrical Engineering both received in 1967 from Princeton University. He worked at the Toshiba Electric Company in Japan from 1963 to 1965, where he was engaged in research and development of advanced radar systems. He is a member of Eta Kappa Nu, IEEE and the Institute of Electrical Communication Engineers, Japan.

Vincent Y. Lum

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Dr. Lum is with the Information Science department at IBM Research. He has worked in the Research Division since 1963, when he transferred from the Systems Development Division Laboratory in Endicott, New York. He had joined the company there in 1963. His professional interests include the various aspects of information systems, data management design and organization, and coding theory. His educational background includes the B.A.Sc. in Engineering Physics, 1960, from the University of Toronto; the M.S. in Electrical Engineering, 1961, from the University of Washington; and the Ph.D. in Electrical Engineering, 1966, from the University of Illinois. He was a research assistant at the University of Washington during 1960–61 and held a similar position at the University of Illinois from 1963 to 1966. During the academic year 1967–1968 he held the position of Adjunct Assistant Professor at Fordham University.

Arvind M. Patel

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Dr. Patel is currently working in the area of coding theory and hardware redundancy in computers in the Advanced Reliability, Availability and Serviceability Technology Department at the Poughkeepsie Laboratory. He received his B.E.(E.E.) from Sardar Vallabhbai Vidyapeeth, India, in 1959; his M.S. in Electrical Engineering from the University of Illinois in 1961; and his Ph.D. in Electrical Engineering from the University of Colorado in 1969. He held a University of Illinois Fellowship in 1961 and an IBM Resident Study Fellowship during 1968 to 1969. On joining IBM in 1962 he became engaged in circuit and system design at the Poughkeepsie Laboratory and from 1965 to 1968 he was located at the Boulder Laboratory. He is a member of the IEEE.

Raymond L. Pickholtz

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Dr. Pickholtz is an Associate Professor of Electrical Engineering at the Polytechnic Institute of Brooklyn. He received the B.S. and M.S. degrees from C.C.N.Y. in 1955 and 1958, respectively, and a Ph.D. from Polytechnic Institute in 1966; all degrees are in Electrical Engineering. From 1955 to 1957 he worked at RCA Laboratories on color TV research and received an RCA Labs Research Award. He worked as a research engineer and as project manager at ITT Labs from 1957 to 1962 on problems of missile guidance, secure communications and data transmission. From 1962 to 1968 he was an instructor and an Assistant Professor at the

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Edouard Y. Rocher

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Dr. Rocher is a Research Staff Member at the Thomas J. Watson Research Center in Yorktown Heights. He graduated from the "Ecole Centrale des Arts et Manufactures" in Paris in 1956 and received a Ph.D. in Semiconductors from the Technische Hochschule Darmstadt (Germany) in 1963. Dr. Rocher joined the IBM-France Laboratory in LaGaude in 1961 to work on electrodeposition of magnetic films; he received an IBM invention award in 1965 for his work on electrodeposition. In 1964 he was assigned to the Voice and Data Switching Unit (IBM 2750) project, in which he worked on the integrated crosspoint of the space division switching network. In 1968 he transferred to the Research Center where he joined a group working on circuits for a large-scale integration project. He is currently involved in problems related to data transmission. Dr. Rocher is a member of IEEE.

John E. Savage

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Dr. Savage became Assistant Professor of Engineering in 1967 and an IBM Consultant in 1968, specializing in information theory and coding and in automata theory. He received the Sc.B. and S.M. degrees in 1962 and the Ph.D. in 1965, all in Electrical Engineering from MIT. He was a member of the Technical Staff at Bell Telephone Laboratories from 1965 to 1967 and is a member of Tau Beta Pi, Eta Kappa Nu, Sigma Xi, ACM and IEEE.

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Mr. Sellers is currently assigned to the Center for Advanced Engineering Study at MIT. He received his B.S. in Electrical Engineering from MIT in 1959 and his M.S. in Electrical Engineering from the University of Pennsylvania in 1960. He joined IBM in 1960 to work in coding theory, error detection and reliability and maintainabilty as applied to computer systems. He was manager of an advanced reliability and serviceability engineering department from 1967 to 1969. He is a member of the IEEE.

Donald T. Tang

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Dr. Tang works in the Computer Sciences Department at the Research Center on the evaluation and analysis of computer networks. He received his B.E. in Electrical Engineering at the Taiwan University in 1953 and his Ph.D. in Electrical Engineering at the University of Illinois in 1960. A research staff member since 1960, his activities include error control coding for communication systems and magnetic recording systems. He was a Visiting Professor of Electrical Engineering at the National Taiwan University during the 1965–1966 school year. He is a member of Eta Kappa Nu, Sigma Xi and the IEEE.